REMARKS

Applicants appreciate the time taken by the Examiner to review Applicants' present application. This application has been carefully reviewed in light of the Official Action mailed July 29, 2004. Applicants respectfully request reconsideration and favorable action in this case.

Rejections under 35 U.S.C. § 112

Claims 1-94 stand rejected under 35 U.S.C. § 112, first and second paragraphs. The Examiner states that the claims contain subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention. More particularly, the claimed combination of steps is not found anywhere in the Description of the Invention. The Examiner further asserts that the specification fails to explain how each of the claimed steps is carried out by hardware/software and that the specification fails to explain how the combination of claimed steps is able to achieve the desired function. The Examiner, therefore, requests that Applicants identify the support of claims 1-22 in the specification. Additionally, the Examiner states that following the steps recited in the Claims does not result in encapsulating any protocol for data transmission between two or more nodes across a packet-based network.

As an initial matter, the recitation of steps for Claim 1 can be found at pages 6-7 of the specification. These steps are further described throughout the Detailed Description of the Invention. More specifically, Claim 1 recites identifying all other available nodes, and remote devices attached to each of said nodes on said network. Discovery of other nodes in a network is described at page 17, line 6 through page 18, line 7, and page 19, lines 3-9. More specifically, a node can register itself (i.e., identify itself and available SCSI targets) with a node that acts as a server. One embodiment of the messages used to manage registration is described on page 14, lines 3-27. More specifically, a node can register the client's EP address and register FC targets with the server node. The node that acts as a server is analogous to a DNS server in that each node can receive information about every other node present on the network and the SCSI targets. Information regarding registered nodes and targets can be sent, for example, as a target table update. Thus, one of ordinary skill in the art would understand that a node can identify other nodes and remote devices available on the network through, for example, the node (or other device) that acts as a server that maintains registrations for nodes and targets.

Claim 1 further recites that each node can represent one or more of the remote devices

such that they are made available to one or more local hosts. A node (e.g., a router) can represent each node as a single target with multiple LUNs or as multiple targets with one or more LUNs and can make these LUNs available to hosts on the local SAN. *See*, page 20, lines 19-26. One of ordinary skill in the art would understand that a node can assign a target device an arbitrary address understandable by a host on the same SAN as the node. With reference to FIGURE 1, one of ordinary skill in the art, based on the fact that virtualization of addresses was known in the art, would understand that any target device known to node 2 could be represented to host 112 as a target or set of targets with one or more LUNs. To host 112, it would appear as though that target is a target on SAN 190.

To recap before proceeding, one of ordinary skill in the art would understand from specification as filed that a node can identify other nodes and remote devices based, for example, on information from a server node (or separate server) with which all the nodes register. Moreover, one of ordinary skill in the art would understand that a node (e.g., a router) can virtualize devices that are known to the node. In other words, the node can present devices that are known to the node to local hosts (i.e., hosts on the same SAN as the node) according to the addressing scheme used by the hosts. So, nodes can discover other nodes and remote devices from the server and present this information in a format usable by a local host (e.g., as a target with a set of LUNs). Because a host is made aware of a target device, the host can, consequently, initiate an I/O process with the target device.

Claim 1, further recites encapsulating an input/output (I/O) phase between one or more of said local hosts and one or more of said remote devices. Page 14, line 28 through page 16, line 10 describes one embodiment for encapsulating the I/O phase of a communication between a host and remote storage device on another SAN. When a message is received from the host, the message is divided into smaller packets that are compatible with the extender network. Using the example of Fibre Channel, the fiber channel sequences are divided into smaller packets of data. Message identifiers are used in the packets so that the Fibre Channel frames can be reassembled. At the receiving node, the Fiber Channel sequences are reassembled based on the message identifier. Because the Fiber Channel sequence can be reassembled, the Fibre Channel sequence can be transmitted to the remote storage device in the format in which the sequence was originally produced.

With respect to 35 U.S.C. 112, paragraph 2, the host and remote storage device operate on different networks (e.g., storage area networks) connected by the packet-based network. Because the host and remote storage devices are connected to different nodes, the encapsulation of the I/O phases inherently requires the encapsulation of messages transmitted

between two nodes across the packet-based network. Thus, the claims as originally submitted encapsulate data for transmission across the packet-based network. Moreover, Claim 1, for example, has been amended to recite that encapsulation occurs according to a packet-based protocol. Again, because a host is connected to a different node than a remote device, and those nodes are connected by the packet-based network, encapsulation of an I/O phase between a host and a remote device includes encapsulation of messages that pass between nodes via the packet-based network.

Applicants, therefore, submit that, based on the application as filed, one of ordinary skill in the art would understand how a node identifies other nodes and remote devices attached to the other nodes, how a node presents the other nodes/remote devices to a local host, and how to encapsulate messages between a local host and a remote device. Moreover, one of ordinary skill in the art would understand that encapsulation of messages between a host and remote device includes encapsulation of messages between nodes. Accordingly, withdrawal of the 35 U.S.C. 112 rejections is requested.

Applicants have further amended Claims 23 and 37 to address the Examiners concerns with respect to these Claims. Applicants submit that these amendments are not intended to change the scope of Claims 23 or 37.

Rejections under 35 U.S.C. § 103

Claims 1-13, 17-19, 21, 23-35, 38-40, 42, 44-58, 62-64, 66, 68-84, 88-90, 92 and 94 stand rejected as obvious over U.S. Patent No. 6,738,821 ("Wilson") in view of U.S. Patent No. 6,061,723 ("Walker").

In order to establish a prima facie case of obviousness, the Examiner must show: that the prior art references teach or suggest all of the claim limitations; that there is some suggestion or motivation in the references (or within the knowledge of one of ordinary skill in the art) to modify or combine the references; and that there is a reasonable expectation of success. M.P.E.P. 2142, 2143; In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). The Examiner must explain with reasonable specificity at least one rejection – otherwise, the Examiner has failed procedurally to establish a prima facie case of obviousness. M.P.E.P. 2142; Ex parte Blanc, 13 U.S.P.Q.2d 1383 (Bd. Pat Application. & Inter. 1989). When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper. Ex parte Skinner, 2 U.S.P.Q.2d 1788, 1790 (Bd. Pat. App. & Inter. 1986).

Independent Claims 1, 23, 44 and 69 have been amended to recite that encapsulation occurs according to a packet-based protocol, wherein messages corresponding to the I/O phase are received by a node according to a second protocol that is different than the packet-based protocol. Moreover, the independent Claims have been amended to recite that neither the one or more hosts nor the one or more remote devices communicate messages corresponding to the I/O phase using the packet-based protocol. These features of the present invention are drawn to the fact that a host can generate a command on a Fibre Channel (or other protocol) network destined for a remote device. The node to which the host is connected can encapsulate the Fibre Channel (or other protocol) sequence (e.g., the message according to the second protocol) according to the packet-based protocol. On the other end of the packet-based network, a node can reassemble the Fibre Channel (or other protocol) sequence and forward the Fibre Channel (or other protocol) sequence to the remote device. The Fiber Channel sequence may, for example, be mapped to a remote SCSI storage device. Neither the remote device nor the host, however, used the packet-based protocol to communicate messages corresponding to the I/O phase.

Applicants submit that Wilson, on the other hand, teaches an Ethernet Storage Protocol (ESP) network to form a storage area network. The ESP uses a storage encapsulation protocol (SEP) to encapsulate storage data. The SEC cited on Col. 5, line 23, a lightweight protocol for transporting data to devices on the ESP network. While the various embodiments of FIGURE 1A-1H illustrate that data received according to a particular protocol can be transported to an ESP storage device using ESP, this, at most, teaches translation of an I/O phase between a protocol used by a host and a different protocol used by a storage device. Applicants, however, are unable to find a teaching or suggestion in Wilson that an I/O phase should be encapsulated according to a packet-based transport protocol that is used by neither the host nor the storage devices. Applicants are further unable to find any such teaching or suggestion in Walker. Moreover, there is no motivation to modify Wilson to encapsulate an I/O phase (and perform subsequent de-encapsulation) in the manner of Martin. The purpose of Wilson is to provide a storage area network that operates according to ESP (i.e., to have hosts and/or storage devices that support ESP). Thus, at least one of the host or the storage device communicates according to the ESP protocol.

If the Examiner disagrees, Applicants respectfully request that the Examiner point out where the cited references teach or suggest encapsulating and I/O phase between a host and remote device for transport across a network that uses a packet-based protocol that is different

from the protocol used by the host and remote device in generating messages associated with the I/O phase. Otherwise, Applicants respectfully request that the Examiner allow Claims 1-95.

New Claim

Claim 95 is, as the Examiner indicated, the renumbered second claim 36 of the application as filed. Claim 96 has been added to more particular point out distinguishing features of the present invention. More particularly, Claim 96 is drawn to the fact that each node can encapsulate Fibre Channel messages corresponding to an I/O phase according to a packet-based protocol. The nodes communicate with the host and remote device using the Fibre Channel protocol and communicate with other nodes using the packet-based protocol. Thus, the packet-based protocol is not used by the node to communicate I/O phrase messages with either the host or the remote device, but is instead used to communicate I/O phrase messages with other nodes.

Applicants have now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicants respectfully requests full allowance of the pending claims. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

New Paragraph

A new paragraph has been added to the specification at page 12. The subject matter of this paragraph is described in the incorporated patent application entitled "Method and System for Mapping Addressing of SCSI Devices between Storage Area Networks," Serial No. 09/710,213, filed on November 10, 2000. Additionally, the subject matter was included in the original filing of the present patent application as an additional page 15 that was submitted between the abstract and before the figures in the original filing of the present application. Applicants therefore submit that no new matter is added by this paragraph.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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